In the Specification:

Please amend the paragraph beginning on line 24 of page 1 as follows:

Moreover, research and development of diffraction gratings that can freely be driven by micro-machines have been proceeding in recent years. Bloom et al (U.S. Pat. No. 5,311,360) discloses a display apparatus using such a diffraction grating as a spatial modulator for modulating light to be projected ~~according to a displaying image was submitted and has been widely noticed~~.

Please amend the first full paragraph on page 2 as follows:

~~The~~ A micro-machine type diffraction grating ~~to be~~ used as a spatial modulator ~~like this~~ is generally called ~~as~~ a Grating Light Valve (GLV)[[,]]. GLVs have ~~and such a diffraction grating has~~ features ~~such that it can~~ allowing them to be operated at a higher speed and can be manufactured at a lower cost by using various ~~kinds of~~ semiconductor manufacturing techniques ~~in comparison with a~~ compared to liquid crystal ~~panel~~ panels and ~~a DMD~~ DMDs that have hitherto been used as a spatial modulator.

Please amend the first full paragraph on page 3 as follows:

~~However, in the case where~~ Where stereoscopic images are displayed by the use of ~~the~~ acousto-optic devices in the way described above, for example, the acousto-optic devices are used as one-dimensional hologram devices by creating a refractive index distribution by the input of ultrasonic waves according to displaying images. However, the displayed images may be distorted as if the displayed image is flowing due to the nature of the ultrasonic waves to be traveling waves. Accordingly, it is necessary to correct the "flowing" distortion of displayed images by the use of, for example, a polygon mirror or a galvano-mirror. In this case, ~~there are~~ problems presented include ~~such that~~ the whole structure of the display apparatus ~~becomes~~ being complicated[[,]] and

~~further that it is needed~~ the need to adjust the timing of the correction to be extremely accurate lest time lags ~~should~~ will be generated.

Please amend the paragraph beginning on line 25 of page 3 as follows:

Moreover, devices other than the acousto-optic devices are ~~so far~~ difficult to ~~obtain~~ use as a spatial modulator that can operate at a high speed and perform ~~the modulation~~ modulation with an abundant amount of information~~, both the speed and the amount being sufficient~~ to display stereoscopic images~~, in a display apparatus for displaying the stereoscopic images~~. ~~The~~ Further, conventional acousto-optic devices ~~have shortcomings of that they~~ are expensive and ~~that~~ high voltages are necessary ~~for driving~~ to drive them.

Please amend the first full paragraph on page 4 as follows:

~~There is another problem. Enormous~~ An enormous amount of information is required for displaying stereoscopic images because it ~~becomes~~ is necessary to display precise information in three-dimensional directions. It is not practical ~~at present~~ to control such enormous amount of information with conventional devices. Moreover, because the amount of information to display a stereoscopic image increases by leaps and bounds as the sizes of the images to be displayed become large, display of a large size stereoscopic images becomes very difficult. ~~Besides~~ Also, in the case where stereoscopic images are displayed as moving picture in real time, the necessary amount of information further jumps up by leaps and bounds[[,]] and it ~~becomes~~ is necessary to process an enormous amount of information at extremely high speed.

Please amend the second full paragraph on page 4 as follows:

Although various kinds of display apparatuses for displaying stereoscopic images have hitherto been proposed, such display

apparatuses have many problems, such as those mentioned above, and ~~the display apparatuses~~ are not put to practical use yet.

Please amend the first full paragraph on page 5 as follows:

According to ~~an~~ one embodiment of the present invention, a ~~stereoscopic image display apparatus is provided. The~~ stereoscopic image display apparatus comprises a light source radiating light of a wavelength in a predetermined wavelength range~~; an~~, a one-dimensional spatial modulator including one-dimensionally arrayed elements that are independently driven to generate an arbitrary phase distribution[[;]], and a scan unit scanning the light from the light source to a predetermined direction, the light having entered into the one-dimensional spatial modulator and having been modulated therein.

Please amend the paragraph beginning on line 15 of page 5 as follows:

The stereoscopic image display apparatus according to the present embodiment~~, which configured as above,~~ uses the one-dimensional spatial modulator including the independently driven elements as a spatial modulator for modulating light to be projected. Because such a one-dimensional spatial modulator may be operated at [[a]] an extremely high speed, stereoscopic images may be displayed based on a sufficiently abundant amount of information. Moreover, because the stereoscopic image display apparatus displays stereoscopic images by the use of light modulated by the one-dimensional spatial modulator, the overall structure of the apparatus may be simplified, and the manufacturing cost thereof may be lowered. Moreover, the apparatus may express a stereoscopic effect without any special equipment such as special glasses to view stereoscopic image.

Please amend the paragraph beginning on line 23 of page 6 as follows:

In the stereoscopic image display apparatus according to the present embodiment, the scan unit may scan the light modulated by the one-dimensional spatial modulator in a direction perpendicular to the arraying direction of the elements of the one-dimensional spatial modulator. Accordingly, a larger ~~size of the~~ stereoscopic image may be displayed and a wider viewing field may be ensured ~~by projecting the scanning light that is modulated with the one-dimensional spatial modulator and scanned with the scan unit into the perpendicular direction to the arraying direction of the elements since~~ because the one-dimensional spatial modulator with the individually driven elements may be operated in a sufficiently fast speed.

Please amend the second full paragraph on page 7 as follows:

According to the above mentioned embodiment of the present invention, the stereoscopic image display apparatus capable of displaying stereoscopic images ~~in~~ at a higher speed may be realized at a lower cost with a simpler structure. Moreover, according to the above mentioned embodiment, an amount of information and a processing time, both being necessary for displaying a stereoscopic image, may be decreased, thereby enabling the moving picture display of stereoscopic images in real time.

Please amend the first full paragraph on page 8 as follows:

The other objects, features, and advantages of the present invention will become more apparent from the following description including ~~of the presently preferred~~ exemplary embodiments of the invention ~~taken~~ in conjunction with the accompanying drawings, in which:

Please amend the second full paragraph on page 8 as follows:

Fig. 1 is a ~~mimetic diagram~~ schematic showing ~~a state such that light enters into a GLV being an example of~~ incident light waves approaching the GVL of a spatial modulator of the present invention;

Please amend the third full paragraph on page 8 as follows:

Fig. 2 is a ~~mimetic diagram~~ schematic showing light waves ~~a state such that the light entered into~~ after being modulated by the GLV ~~being an example~~ of the spatial modulator of the present invention ~~is modulated and reflected~~;

Please amend the fourth full paragraph on page 8 as follows:

Fig. 3 is a ~~mimetic diagram~~ schematic perspective ~~for explaining the principle of the present invention by~~ illustrating the scanning and diffusion of ~~the~~ light modulated by the GLV ~~in a predetermined direction~~;

Please amend the fifth full paragraph on page 8 as follows:

Fig. 4 is a schematic ~~diagram of a display apparatus shown as an example of the structure~~ perspective of the stereoscopic image display apparatus according to the present invention;

Please amend the sixth full paragraph on page 8 as follows:

Fig. 5 is a schematic ~~diagram for illustrating the rotation directions of a first and a second galvano-mirrors of the display apparatus~~ of the stereoscopic image display apparatus shown in Fig. 4 from another perspective;

Please amend the seventh full paragraph on page 8 as follows:

Fig. 6 is a ~~mimetic diagram~~ schematic showing an example of ~~a state such that~~ scanning directions of the laser beams ~~modulated to one-dimensional wavefronts scan~~ in a projection plane on which

stereoscopic images are projected by ~~in~~ the display apparatus;

Please amend the eighth full paragraph on page 8 as follows:

Fig. 7 is a ~~mimetic diagram~~ schematic showing another example of ~~a state such that~~ scanning directions of the laser beams ~~modulated to one-dimensional wavefronts scan~~ in a projection plane on which stereoscopic images are projected by ~~in~~ the display apparatus;

Please amend the first full paragraph on page 9 as follows:

Fig. 8 is a ~~schematic~~ block diagram showing a control circuit provided in the display apparatus; and

Please amend the second full paragraph on page 9 as follows:

Fig. 9 is a schematic perspective ~~view~~ of ~~a mirror array shown as an example of~~ a display apparatus having a scan mechanism including a mirror array ~~provided in the display apparatus~~.

Please amend the heading on line 7 of page 9 as follows:

DETAILED DESCRIPTION OF THE ~~PREFERRED EMBODIMENTS~~ INVENTION

Please amend the paragraph beginning on line 8 of page 9 as follows:

Hereinafter, the attached drawings are referred to while ~~a preferred embodiment~~ embodiments of the stereoscopic image display apparatus according to the present invention are described ~~in detail~~.

Please amend the paragraph beginning on line 13 of page 9 as follows:

One of the features of a first embodiment of the present ~~embodiment~~ invention is to use a micro-machine type one-dimensional spatial modulator as a spatial modulator for modulating light to be projected. Specifically, as such a spatial modulator, a micro-machine type

diffraction grating may be used. The micro-machine type diffraction grating is generally called ~~as~~ a Grating Light Valve (GLV) when ~~it is~~ used as a spatial modulator.

Please delete the paragraph beginning on line 21 of page 9.

Please amend the paragraph beginning on line 25 of page 9 as follows:

A GLV comprises a plurality of minute ribbons formed on a substrate. The ribbons may be fabricated with various semiconductor manufacturing techniques. Each ribbon is configured to be able to ~~arbitrary~~ arbitrarily ascend and descend ~~by~~ in response to actuation from a piezoelectric device or the like. The GLV with such ribbon structure may be operated to dynamically drive each ribbon to vary its height while light with a predetermined wavelength range is irradiated thereto, thereby constituting a phase type diffraction grating as a whole. That is, the GLV generates the $\pm 1^{st}$ order (or higher order) diffracted light ~~by receiving irradiation of the light~~ from the incident irradiant light received.

Please amend the first full paragraph on page 10 as follows:

Accordingly, an image may be displayed by the following operations: irradiation of light to the GLV; shielding of the 0^{th} order diffracted light; and driving each ribbon of the GLV ~~upwardly~~ upward and ~~downwardly~~ downward so as to have the diffracted light blink.

Please amend the second full paragraph on page 10 as follows:

Various display apparatuses for displaying planar images (two-dimensional images) by utilizing the aforesaid characteristics of a GLV have hitherto been ~~interoduced~~ introduced. When a conventional display apparatus displays a constituent unit (hereinafter referred to as a pixel) of a planar image to be displayed, about six ribbons are used for displaying ~~one~~ the pixel. Furthermore, in a group of ribbons

corresponding to one pixel, ~~adjoining~~ adjacent ribbons are made to selectively ascend or descend ~~alternately~~.

Please amend the third full paragraph on page 10 as follows:

However, if each ribbon in a GLV ~~may~~ is independently ~~be~~ wired to be driven separately, an arbitrary one-dimensional phase distribution may be generated. The GLV structured in such a way may be regarded as a reflection type one-dimensional phase type hologram.

Please amend the second full paragraph on page 11 as follows:

~~Hereupon, a specific example in the case where stereoscopic images are displayed by the use of such GLV is described.~~ In the case where a stereoscopic image is displayed by the use of the GLV in which a plurality of ribbons are one-dimensionally arrayed, each ribbon of the GLV is driven as follows: the Fourier transformation of a function ~~a(x): A(X) H(X)exp[iö(X)]~~ a(x): A(X) = H(X)exp[iϕ(X)] is calculated when an amplitude of the one-dimensional wavefront generated by the GLV is expressed by the a(x) as a function in an x-direction[[;]] and then each ribbon of the GLV is driven in such a way that a phase difference corresponding to the phase component ~~ö(X)~~ ϕ(X) is given to the reflected light.

Please amend the paragraph beginning on line 27 of page 11 as follows:

In order to be more precise, it is desirable to modulate the amplitude component H(X) as well. Accordingly, a more accurate three-dimensional display may be realized. Incidentally, the display apparatus may still be able to display a stereoscopic image with sufficient stereoscopic effects even if the amplitude component H(X) is set to be constant.

Please amend the first full paragraph on page 12 as follows:

When the ribbon in the GLV descends by a depth [[Ø]] Ψ (not shown) from its default position, a change of ~~2Ø~~ 2Ψ is generated in the optical path length for the reflected light. Accordingly, the phase difference generated by this change is ~~4ěØ/ě~~ $4\pi\Psi/\lambda$ where [[ë]] λ designates the wavelength of the light.

Please amend the second full paragraph on page 12 as follows:

Because ~~the~~ analog modulation of the GLV is possible, a desired phase difference may be given to the reflection light by precise analog driving of the GLV. However, when a display apparatus ~~is structured by the use of~~ has such a GLV, it is practical to use a discrete calculation method such as the fast Fourier transformation. Accordingly, it is practical to discretely drive each ribbon of the GLV based on a digital signal ~~discretely, and~~ thereby ~~enabling~~ easily allowing for various ~~kinds~~ types of signal processing~~-easy~~.

Please amend the third full paragraph on page 12 as follows:

Another embodiment in accordance with the present invention is characterized by displaying stereoscopic images by the use of, for example, a technique shown in Fig. 3 on the basis of the aforesaid principle. As shown in Fig. 3, a GLV 20 in which a plurality of ribbons are one-dimensionally arrayed generates one one-dimensional wavefront after another. The generated wavefronts are scanned in a vertical direction by a scan mechanism comprising, for example, a galvano-mirror 21. That is, by rotating the galvano-mirror 21 in a direction shown by an arrow A in Fig. 3, a plurality of wavefronts 22a, 22b, 22c are radiated in such a way that they are arranged in the vertical direction. Thereby, a stereoscopic image may be displayed. It is desirable to provide a one-dimensional diffuser panel 23 in the vicinity of the stereoscopic image to be displayed. By the diffuser panel 23, a vertical visual field may be enlarged slightly, and discontinuities between the wavefronts 22a, 22b,

22c are made to be inconspicuous. Accordingly, more natural stereoscopic effects may be expressed. Although horizontal parallax may be sufficiently achieved by the technique shown in Fig. 3, it is difficult to also obtain vertical parallax. This difficulty is addressed in the following.

Please delete the paragraph beginning on line 27 of page 12.

Please delete the first full paragraph on page 13.

Please delete the second full paragraph on page 13.

Please amend the paragraph beginning on line 24 of page 13 as follows:

When a display apparatus ~~is structured by the use of~~ includes a diffraction grating such as a GLV or a hologram, the relations expressed by the following Equation 1 and Equation 2 are satisfied, where the maximum spatial frequency of the diffraction grating, the shortest period of the grating, a reproduced wavelength, and a diffraction angle (the diffraction angle influences the extent of a visual field) are respectively designated by f_h, [[Ë]]Δ, [[ë]]λ, and [[è]]θ.

Please amend the sentence on line 4 of page 14 as follows:

~~$f_h = 1/$Ë~~ $f_h = 1/\Delta$ ... (Equation 1)

Please amend the sentence on line 5 of page 14 as follows:

~~f_hë = sinè~~ $f_h\lambda = \sin\theta$ ... (Equation 2)

Please amend the paragraph beginning on line 7 of page 14 as follows:

According to the sampling theorem, the minimum sampling frequency f_s may be expressed ~~to meet to~~ by the following Equation 3.

Please amend the paragraph beginning on line 13 of page 14 as follows:

Accordingly, a sample number N necessary for reproducing ~~an~~ a one-dimensional stereoscopic image having a horizontal length d may be expressed ~~to meet~~ by the following Equation 4.

Please amend the sentence on line 18 of page 14 as follows:

~~N = d·fs = (2d·sinè)/ë~~ $N = d \cdot f_s = (2d \cdot \sin\theta)/\lambda$ ... (Equation 4)

Please amend the sentence on line 28 of page 14 as follows:

~~Nh = dL·fs = (2dL·sinè)/ë~~ $N_h = dL \cdot f_s = (2dL \cdot \sin\theta)/\lambda$ ... (Equation 5)

Please amend the sentence on line 7 of page 15 as follows:

~~Nhv = (2dw·sin²è)/ë²~~ $N_{hv} = (2dw \cdot \sin^2\theta)/\lambda^2$ ... (Equation 6)

Please amend the paragraph beginning on line 9 of page 15 as follows:

As ~~being apparent~~ can be seen by ~~the comparison of~~ comparing Equation 5 and Equation 6, a required amount of information (the number of samples) remarkably increases when achievement of both ~~the~~ horizontal ~~parallax~~ and ~~the~~ vertical parallax are ~~tried to be~~ secured, compared to when ~~in comparison with that in the case where~~ only ~~the~~ horizontal parallax is secured. For example, when the diffraction angle θ is 30 degrees and the reproduced wavelength λ is 0.5 μm, the total number N_{hv} of required samples is 2dw × 10^{12} according to Equation 6. Further, when the horizontal length d and vertical length w of a stereoscopic image to be displayed are 100 mm, the total number N_{hv} of samples necessary for displaying one stereoscopic image is 2 × 10^{10}. That is, 20 G bits (gigabits) of information becomes necessary to display a single stereoscopic image. Moreover, for example, if 30 stereoscopic images are to be displayed every second for displaying moving picture images, 600 G bits (75 G bytes) of information becomes necessary every second.

Please delete the paragraph beginning on line 16 of page 15.

Please amend the first full paragraph on page 16 as follows:

Incidentally, ~~the amount of information of~~ 600 G bits of information is ~~equal to an~~ the same amount of information required when the moving ~~picture image is~~ pictures are displayed ~~with~~ using monochromatic and no-gradation images. If a color display with the three primary colors is ~~to be performed~~ desired, ~~an~~ the amount of information required is tripled. If eight levels of gradation ~~is~~ are to be used, eight times ~~of~~ the amount of information is ~~further~~ required. Furthermore, if displaying is performed on a 12-inch ~~size~~ display apparatus, ~~an amount of information~~ seven times the amount of information or more is further needed. ~~Accordingly, signal~~ Signal processing dealing with such an enormous amount of information at a high speed is far from being put to practical use ~~at present~~ by conventional methods.

Please amend the second full paragraph on page 16 as follows:

~~On the other hand, according~~ According to the present ~~embodiment~~ invention, ~~by the use of~~ using the technique shown in Fig. 3, a stereoscopic image is displayed only by the horizontal parallax thereof ~~by the relinquishment of~~, with the vertical parallax thereof being relinquished. In this case, ~~similarly~~ similar to ~~what have been~~ that described above, for example, when the diffraction angle [[è]]θ is set to be 30 degrees and the reproduced wavelength [[ë]]λ is set to be 0.5 [[ìm]] μm, the total number N_{hv} of the required samples is $2dL \times 10^6$ in accord ~~conformity~~ with Equation 5. If the horizontal length d and the vertical length w of a stereoscopic image to be displayed are ~~severally set to be~~ 100 mm and the vertical resolution L is set to be 1000, the total number N_h of the samples necessary for displaying one piece of stereoscopic image is 2×10^8. This amount of information is ~~1/100 in comparison with~~

1/100th of the aforesaid total sample number $N_{h\nu}$[[,]] (i.e., 2×10^{10}). According to the present embodiment, using the technique shown in Fig. 3, it is possible to decrease the amount of information and processing time necessary for displaying a stereoscopic image at a practical level. Also, because two human eyes exist in a horizontal line, human eyes are less sensitive to vertical parallax than to horizontal parallax. Thus, stereoscopic effects may fully be expressed in the case where a stereoscopic image is displayed by the use of the technique shown in Fig. 3, with its vertical parallax being relinquished.

Please delete the first full paragraph on page 17.

Please delete the second full paragraph on page 17.

Please amend the third full paragraph on page 17 as follows:

Next, according to ~~still~~ another embodiment of the present invention, a display apparatus 30 shown in Fig. 4 is provided for displaying a stereoscopic image. The display apparatus 30 displays stereoscopic images by scanning and projecting light modulated by a micromachine type one-dimensional spatial modulator ~~by utilizing the aforesaid principle of the present invention~~. The display apparatus 30 comprises a first laser oscillator 31a, a second laser oscillator 31b, and a third laser oscillator 31c that respectively emits a laser beam in the wavelength range of red, green and blue. Other types of coherent light sources such as solid state laser device may be employed in place of the laser oscillators. The display apparatus 30 further comprises a GLV 32 for modulating the laser beams emitted from the laser oscillators 31a, 31b, 31c so as to form one-dimensional wavefronts Wr, Wg, Wb with desired phase distributions.

Please delete the fourth full paragraph on page 17.

Please delete the first full paragraph on page 18.

Please amend the second full paragraph on page 18 as follows:

The GLV 32 is provided with three ribbon arrays 32a, 32b, 32c respectively formed from a plurality of minute ribbons that are one-dimensionally arrayed (in a straight line). In the GLV 32, each ribbon 32a, 32b, 32c is structured to be able to ascend and descend independently and ~~arbitrary~~ arbitrarily by use of a piezoelectric device or the like. ~~These~~ The ribbons 32a, 32b, 32c in the GLV 32 are independently driven by a control circuit that will be described later. ~~Moreover, each~~ Each ribbon array 32a, 32b, 32c of the GLV 32 is irradiated by a red laser beam, a green laser beam, or a blue laser beam that is respectively radiated from the first, the second, or the third laser oscillators 31a, 31b, 31c. That is, in the GLV 32, a ribbon array 32a for red, a ribbon array 32b for green, and a ribbon array 32c for blue are formed, and the red laser beam, the green laser beam, and the blue laser beam are selectively radiated. Then, the GLV 32 one-dimensionally modulates and reflects each laser beam to generate an arbitrary wavefront for each color: a red wavefront Wr, a green wavefront Wg, and a blue wavefront Wb shown in Fig. 4. Because the color wavefronts Wr, Wg, Wb travel through substantially the same optical path, they are collectively referred to as a laser beam in the following sections of the present specification.

Please delete the third full paragraph on page 18.

Please amend the first full paragraph on page 19 as follows:

Moreover, the display apparatus 30 comprises a collimator lens 33, a first galvano-mirror 34, a second galvano-mirror 35, a Fourier transformation lens 36, and ~~an~~ a one-dimensional diffuser panel 37, ~~all being~~ arranged in this order on an optical path of the laser beams reflected by the GLV 32. The collimator lens 33 allows the laser beams

reflected by the GLV 32 to pass through to form parallel rays. The parallel rays leaving the collimator lens 33 are then incident on the first galvano-mirror 34. The first galvano-mirror 34 reflects the incident laser beams to make them incident on the second galvano-mirror 35. The second galvano-mirror 35 reflects the incident laser beams to make them incident on the Fourier transformation lens 36.

Please delete the second full paragraph on page 19.

Please amend the paragraph beginning on line 27 of page 19 as follows:

~~Accordingly, in the display apparatus 30, the laser beams, that have modulated by the GLV 32 and have one-dimensional wavefronts (linear wavefronts), are scanned by the first and the second galvano-mirrors 34, 35 in such a way, for example, shown in Fig. 6.~~ Fig. 6 ~~schematically~~ shows the scanning directions of the laser beams in a projection plane on which stereoscopic images are projected by the display apparatus 30. In the figure, the transverse direction is assumed as the horizontal direction, and the longitudinal direction is assumed as the vertical direction. That is, in the display apparatus 30, the first and the second galvano-mirrors 34, 35 are driven to rotate by the control circuit and, thereby, can scan the incident laser beams in the horizontal direction and the vertical direction, respectively.

Please delete the first full paragraph on page 20.

Please amend the second full paragraph on page 20 as follows:

Because the laser beams modulated by the GLV 32 have one-dimensional wavefronts ~~in the display apparatus 30~~, stereoscopic images may be displayed by ~~the~~ scanning ~~of~~ the laser beams only with the second galvano-mirror 35 in the direction perpendicular to the laser beam wavefronts[[,]] (i.e., in the vertical direction in Fig. 6), without using

the first galvano-mirror 34. In this case, the horizontal length of the stereoscopic image to be displayed is restricted by the length of the ribbon arrays 32a, 32b, 32c formed on the GLV 32.

Please amend the paragraph beginning on line 26 of page 20 as follows:

~~More specifically, when~~ When a GLV capable of displaying 1024 pixels is used as the GLV 32 in the display apparatus 30, ~~the number of~~ there are 6,144 ribbons ~~formed~~ in each ribbon array 32a, 32b, 32c in the GLV 32 ~~are severally 6144~~ (~~in the case~~ where six ribbons are included in one pixel). ~~In the GLV 32, when~~ When it is assumed that an interval distance between two neighboring ribbons is 5 [[im]] μm, the horizontal length of a stereoscopic image capable of being projected by the display apparatus 30 ~~becomes~~ is about 30 mm unless a magnifying lens is used. Accordingly, it is necessary to increase the number of ribbons of the GLV 32 in order to widen the horizontal length of the stereoscopic image. However, the yield of manufacturing is decreased and the manufacturing cost increased when the device area of the GLV 32 is enlarged.

Please delete the first full paragraph on page 21.

Please amend the second full paragraph on page 21 as follows:

~~Because~~ When, in the display apparatus 30, the laser beams are scanned by the first and the second galvano-mirrors 34,35 in the horizontal direction and in the vertical direction~~. Namely~~, the laser beams are, so to speak, two-dimensionally scanned. Accordingly, the horizontal length of the stereoscopic image to be displayed may be enlarged without depending on the length of the ribbon arrays 32a, 32b, 32c formed on the GLV 32.

Please amend the paragraph beginning on line 23 of page 21 as follows:

When the operation frequencies of the first and the second galvano-mirrors 34, 35 are 1 MHz, 200 lines may be scanned by the first galvano-mirror 34 in the horizontal direction even if 5,000 lines are scanned by the second galvano-mirror 35 in the vertical direction. Accordingly, ~~as described above,~~ when the GLV 32 on which 6,144 ribbons are formed with intervals of 5 [[ím]] $\underline{\mu m}$ between each other is used, the horizontal length of the stereoscopic image to be displayed may be enlarged up to 6 m.

Please amend the first full paragraph on page 22 as follows:

Because the amount of information to be processed naturally increases ~~by leaps and bounds~~ <u>considerably</u> for the displaying of a stereoscopic image in a large size as described ~~above~~, the ~~practically~~ realizable image size is limited depending on the performance of signal processing. The display apparatus 30 according to the present embodiment is ~~sufficiently~~ capable of displaying a stereoscopic image in the aforesaid ~~degree of~~ size. By ~~alleviating the limitation due to the~~ <u>improving</u> signal processing capability by, for example, utilizing <u>a</u> parallel processing technique of <u>a high performance</u> computer apparatus ~~having high operation performance~~, an extra-large three-dimensional image may also be displayed.

Please amend the paragraph beginning on line 17 of page 22 as follows:

It is difficult to scan the laser beams precisely in the horizontal direction and in the vertical direction as shown in Fig. 6 because the first and the second galvano-mirrors 34, 35 are driven to rotate continuously in the present embodiment. Alternatively, by <u>changing</u> the ~~change of~~ scanning speeds of the first and the second galvano-mirrors 34, 35 in the display apparatus 30 ~~as shown in Fig. 7~~, laser beams may be scanned obliquely<u>, as shown in Fig. 7</u>. More specifically, for example, the laser beam may be scanned six times in the vertical direction by the

second galvano-mirror 35 while the laser beam has been scanned once in the horizontal direction by the first galvano-mirror 34. However, because the one-dimensionally modulated laser beam is shifted in the horizontal direction while the laser beam is scanned in the vertical directions in this case, an amount of such shifting should be ~~in~~ taken into consideration ~~to drive~~ for driving the ribbon arrays 32a, 32b, 32c of the GLV 32.

Please amend the first full paragraph on page 23 as follows:

In the display apparatus 30, by the aforesaid operation of the first and the second galvano-mirrors 34, 35, the laser beams are scanned in the horizontal direction and the vertical direction. Then, the scanned laser beams ~~is~~ are incident on the Fourier transformation lens 36. Other types of lens may be employed in place of the Fourier transformation lens 36 as long as such lens can perform Fourier transformation on the desired light. The Fourier transformation lens 36 alters the laser beams passing through it according to the Fourier transformation. Then, the transformed laser beams are incident on the one-dimensional diffuser panel 37.

Please delete the second full paragraph on page 23.

Please delete the third full paragraph on page 23.

Please amend the fourth full paragraph on page 23 as follows:

The one-dimensional diffuser panel 37 is disposed on a Fourier surface of the Fourier transformation lens 36[[,]] and ~~the one-dimensional diffuser panel 37 makes~~ diffuses the ~~incident~~ laser beams ~~pass~~ passing through it ~~to diffuse them~~ one-dimensionally. Because the display apparatus 30 is provided with the one-dimensional diffuser panel 37, ~~the display apparatus 30~~ a slightly ~~enlarges the~~ enlarged visual field ~~thereof~~ is obtainable in the vertical direction, ~~and~~ which can make the

discontinuities between the wavefronts of the laser beams ~~that are~~ scanned in the vertical directions inconspicuous, thereby realizing more natural stereoscopic effects. After passing through the one-dimensional diffuser panel 37, the laser beams are projected on a projection plane and a stereoscopic image G having horizontal parallax is displayed, as shown in Fig. 4.

Please delete the first full paragraph on page 24.

Please amend the second full paragraph on page 24 as follows:

The display apparatus 30 comprises a control circuit 40, as shown in Fig. 8. The control circuit 40 ~~is constituted by~~ includes, for example, various semiconductor devices. The information (hereinafter referred to as display image data) concerning stereoscopic images to be displayed is input into the control circuit 40. The information may be from an apparatus ~~that may be~~ located outside the display apparatus 30. The control circuit 40 controls the GLV 32 according to the input display image data to drive the plural ribbons formed on the GLV 32 separately. Moreover, the control circuit 40 controls the rotation speeds and the rotation timings of the first and the second galvano-mirrors 34, 35.

Please amend the third full paragraph on page 24 as follows:

The control circuit 40 is can comprise, for example ~~as shown in Fig. 8~~, ~~comprises~~ a clock generator 41, a Fourier transformation section 42, a GLV driving section 43, and a galvano-mirror driving section 44. The clock generator 41 generates a clock signal for referencing the operation timing of the control circuit 40 and the whole operation timing of the display apparatus 30. The clock generator 41 outputs the generated clock signal to the GLV driving section 43 and the galvano-mirror driving section 44. The signal level of the clock signal can be set to change in a predetermined manner. Each section of the control circuit 40 performs

various kinds of processing at the timing of the signal level change of the clock signal.

Please delete the paragraph beginning on line 28 of page 24.

Please amend the first paragraph on page 26 as follows:

~~The control circuit 40 has the following control function.~~ That is, by the operation of the GLV driving section 43 and the galvano-mirror driving section 44 according to the clock signal, the control circuit 40 ~~makes~~ causes the GLV 32 and the first and the second galvano-mirrors 34, 35 to operate at suitable timings in cooperation with each other. When the laser beams are scanned under the ~~above-cited~~ control of the control circuit 40, ~~an~~ a stereoscopic image is displayed in the display apparatus 30, as shown in Fig. 6 or Fig. 7.

Please amend the second paragraph on page 26 as follows:

The display apparatus 30 structured in such a way uses a micromachine type one-dimensional spatial modulator, i.e. the GLV 32, as a spatial modulator for modulating light to be projected. Because the GLV 32 can be operated at an extremely high speed, an abundant amount of information may be used to display the stereoscopic image ~~may be displayed while using sufficiently abundant amount of information~~. Moreover, because the display apparatus 30 displays the stereoscopic image with the light modulated by the GLV 32, the overall structure of the apparatus may be simplified, and the manufacturing cost thereof may be lowered. Moreover, stereoscopic effects may be expressed without using special equipment such as dedicated glasses for viewing a stereoscopic image.

Please amend the paragraph beginning on line 26 of page 26 as follows:

Moreover, the display apparatus 30 modulates the laser

beams with the GLV 32 having a function of ~~an~~ a one-dimensional spatial modulator[[,]] and projects the modulated laser beams while scanning them to predetermined directions. Thereby, the display apparatus 30 displays the stereoscopic image. That is, the display apparatus 30 relinquishes the vertical parallax in the stereoscopic image to be displayed[[,]] and displays the stereoscopic image only with its horizontal parallax. Since the display apparatus 30 displays the stereoscopic image by utilizing only the horizontal parallax, the display apparatus 30 may suppress the increase of the amount of information necessary for displaying the stereoscopic image.~~, and thereby~~ Thereby, it becomes possible to decrease the amount of information and ~~the~~ processing time~~,~~ ~~both being~~ necessary for displaying the stereoscopic image.

Please amend the first full paragraph on page 27 as follows:

In the above description, the display apparatus 30 scans the laser beams in the horizontal direction and in the vertical direction ~~with~~ using the first and the second galvano-mirrors 34, 35.~~, and consequently~~ In this way, the display apparatus 30 functions, so to speak, as a scan mechanism for scanning the laser beams.

Please amend the second full paragraph on page 27 as follows:

The display apparatus 30 is not limited to ~~be~~ being equipped with the scan mechanism structured ~~in such a way~~ as described. ~~Alternatively, any~~ Any scan mechanism structured to scan and project laser beams in predetermined directions may be ~~employable~~ used. More specifically, for example, the scan mechanism may be structured by the use of a two-axis galvano-mirror having rotational axes orthogonal to each other and able to be driven two-dimensionally.

Please delete the third full paragraph on page 27.

Please amend the first full paragraph on page 28 as follows:

Moreover, ~~still~~ <u>as</u> another type of the scan mechanism, a mirror array 50<u>, as</u> shown in Fig. 9, may be used. In the mirror array 50, ~~as shown in Fig. 9,~~ surfaces on which the laser beams are incident upon are formed in a multistage shape. The reflection angle of each stage mirror is formed to differ from each other slightly. Then, by the use of the mirror array 50 in combination with, for example, the first galvano-mirror 34, the scanning with the scan mechanism is accomplished. <u>In this case, for example, by rotating the galvano-mirror 34 about the horizontal axis, the laser beams are scanned in the direction of an arrow A (i.e., in the vertical direction). Then, the laser beams are incident on the reflection surfaces of the mirror array 50 and scanned in the direction of an arrow B in Fig. 9, namely the direction of a combination of the vertical direction and the horizontal direction, on a projection plane 51.</u>

Please delete the second full paragraph on page 28.

Please amend the third full paragraph on page 28 as follows:

Moreover, in the display apparatus 30, the scan mechanism may be structured by the combination of, for example, a polygon mirror and a volume type hologram. Alternatively, the display apparatus may be structured to scan the laser beams by the rotation of the GLV 32 itself ~~with~~ utilizing a rotation mechanism such as a stepping motor.

Please amend the paragraph beginning on line 28 of page 28 as follows:

Although the invention has been described in its preferred ~~form~~ <u>forms</u> with a certain degree of particularity, ~~obviously many~~ changes, variations<u>,</u> and combinations of the embodiments are possible therein. It is therefore to be understood that the present invention may be practiced <u>other</u> than as specifically described herein without departing from <u>the</u> scope of the invention ~~thereof~~.